

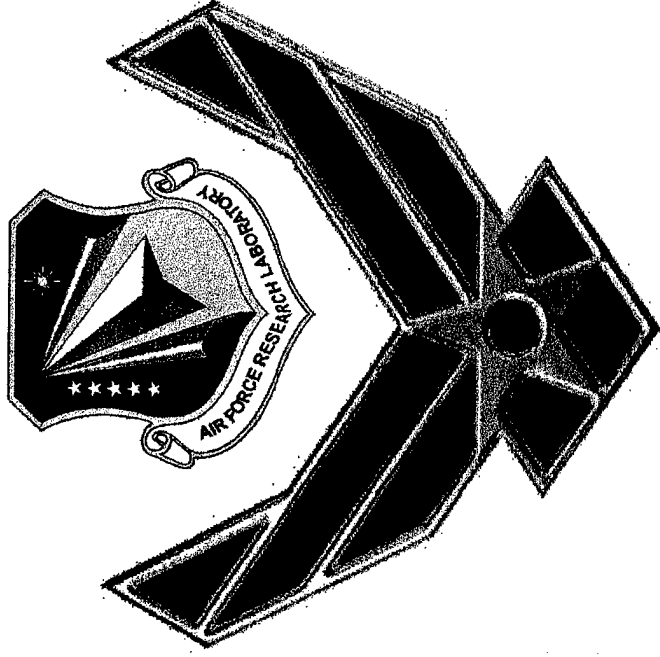
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# **Attachment 5 to PRDA 04-01-PKT:**

## **AFRL/PRSS Electric Propulsion Facilities and Capabilities**



**Frank Gulczinski**

**661-275-6796**

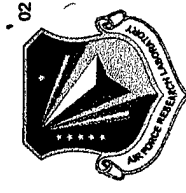
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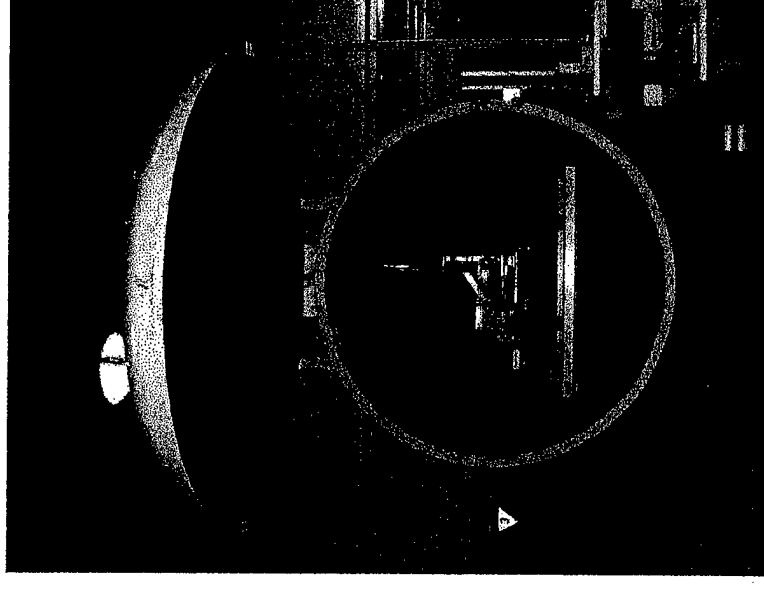
# Laboratory Capabilities:

## Electric propulsion development



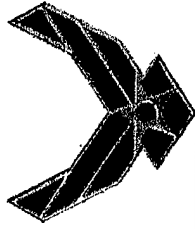
### Chamber 2:

- micro-Newton thrust stand
  - Range: 10 micro-N to 200 micro-N
- Fully automated thruster operation
- Complete data acquisition system
- 2.8 m diameter, 4 m length
- Pumping speed 9,000 l/s (Xe)
  - Two 60 cm diffusion pumps
  - Large mechanical pump train
  - Base pressure:  $1 \times 10^{-6}$  torr



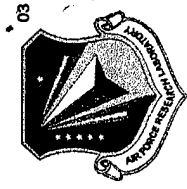
***USED FOR: PPT's, micro-PPT's, small Hall effect thrusters***

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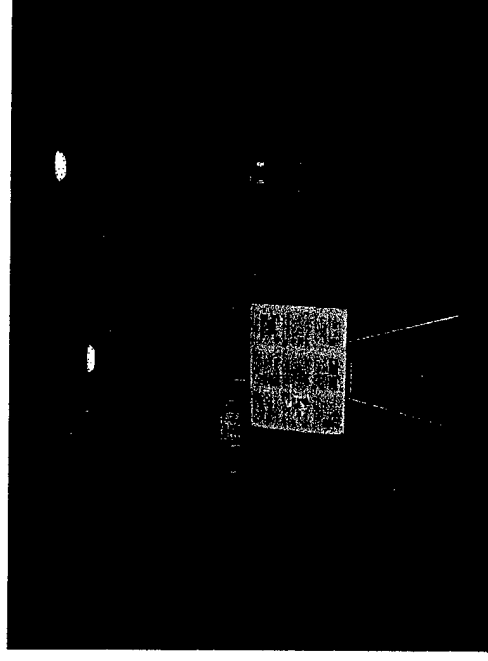
# Laboratory Capabilities:

## Electric propulsion development



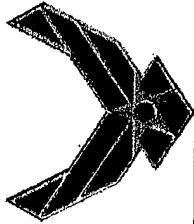
### Chamber 3:

- milli-Newton thrust stand
  - Range: 0.01 N to 1 N
- Fully automated thruster operation
- Complete data acquisition system
- 3.2 m diameter, 10 m length
- Pumping speed 135,000 l/s (Xe)
  - Cryogenic panels
  - Base Pressure:  $1 \times 10^{-7}$  torr



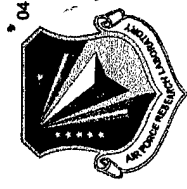
***USED FOR: large Hall effect thrusters***

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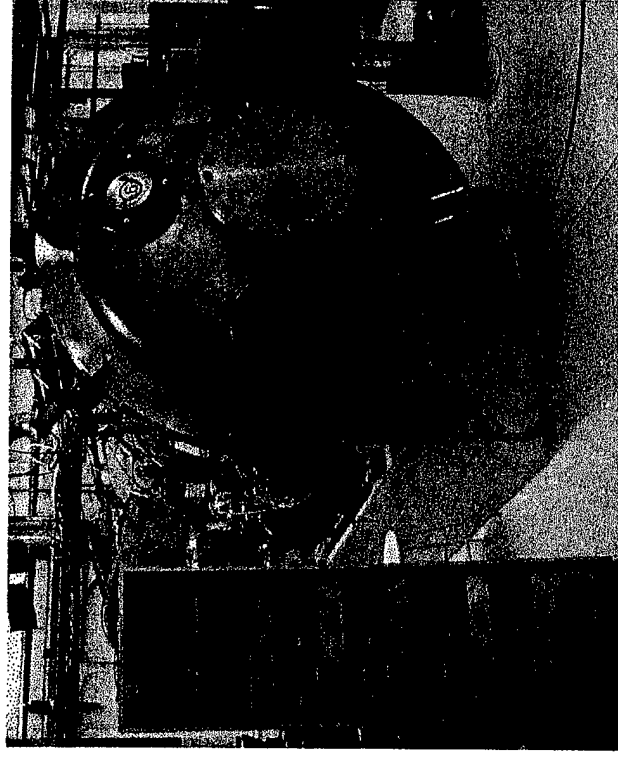
# Laboratory Capabilities:

## Electric propulsion development



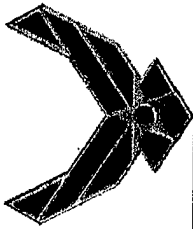
### Chamber 6:

- Partially automated thruster operation(s)
- Complete data acquisition system
- 1.8 m diameter, 3 m length
- Pumping speed 32,000 l/s (Xe)
  - Cryogenic panels
  - Base pressure range:  $1 \times 10^{-7}$  torr



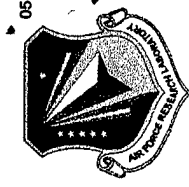
***USED FOR: low to mid power Hall thrusters***

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# Laboratory Capabilities:

Electric propulsion development



## Chambers 8, 9 and 10:

- Fully automated thruster operation(s)
- Complete data acquisition system
- 0.5 m diameter, 1 m height
- Pumping speed 300 l/s (N<sub>2</sub>)
  - 15 cm turbomolecular pump
  - Base pressure range: 1x10<sup>-6</sup> torr



***USED FOR: micro-PPT's, cathodes***

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